IN THE CLAIMS

1. (Original) A sorbent composition suitable for removing sulfur from a hydrocarbon-containing fluid, said sorbent composition comprising:

a reduced-valence noble metal;

zinc oxide; and

a carrier.

2. (Original) A sorbent composition in accordance with claim 1 wherein said reduced-valence noble metal has a valence which is less than the valence of the metal of the reduced-valence noble metal in its common oxidized state.

3. (Original) A sorbent composition in accordance with claim 2 wherein said reduced-valence noble metal is present in the range of from about 0.01 to about 25 weight percent.

4. (Original) A sorbent composition in accordance with claim 3 wherein said zinc oxide is present in the range of from about 10 to about 90 weight percent.

5. (Original) A sorbent composition in accordance with claim 4 wherein said carrier comprises an inorganic carrier.

6. (Original) A sorbent composition in accordance with claim 5 wherein said inorganic carrier is selected from the group consisting of

silica, silica gel, alumina, diatomaceous earth, expanded perlite, kieselguhr, silica-alumina, titania, zirconia, zinc aluminate, zinc titanate, zinc silicate, magnesium aluminate, magnesium titanate, synthetic zeolites, natural zeolites, and combinations of two or more thereof.

7. (Original) A sorbent composition in accordance with claim 6 wherein said inorganic carrier comprises a silica compound and an alumina compound.

8. (Original) A sorbent composition in accordance with claim 7 wherein said silica compound is present in an amount in the range of from about 5 to about 85 weight percent and wherein said alumina compound is present in an amount in the range of from about 1 to about 30 weight percent.

9. (Original) A sorbent composition in accordance with claim 8 wherein said reduced-valence noble metal is selected from the group consisting of platinum, palladium, rhodium, ruthenium, osminium, iridium, and combinations thereof.

10. (Original) A sorbent composition in accordance with claim 1 wherein said reduced-valence noble metal has a valence of less than 2.

11. (Original) A sorbent composition in accordance with claim 10 wherein said reduced-valence noble metal is present in an amount in the range of from about 0.1 to about 10 weight percent and wherein said zinc

oxide is present in an amount in the range of from about 15 to about 80 weight percent.

12. (Original) A sorbent composition in accordance with claim 11 wherein said carrier comprises a silica compound and an alumina compound.

13. (Original) A sorbent composition in accordance with claim 12 wherein said alumina compound is present in an amount in the range of from about 5 to about 20 weight percent and wherein said silica compound is present in an amount in the range of from about 10 percent to about 60 weight percent.

14. (Original) A sorbent composition in accordance with claim 1 wherein said reduced-valence noble metal has a valence of zero.

15. (Original) A sorbent composition in accordance with claim 14 wherein said reduced-valence noble metal comprises platinum.

16. (Original) A sorbent composition in accordance with claim 1 wherein said sorbent composition is a particulate in the form of a microsphere having a mean particle size in the range of from about 1 micrometer to about 500 micrometers.

17. (Original) A process of making a sorbent composition, said process comprising the steps of:

(a) admixing zinc oxide and a carrier to provide a support mix;

(b) particulating the support mix to provide a support particulate;

(c) incorporating said support particulate with a noble metal to provide a promoted particulate comprising an unreduced noble metal; and

(d) reducing said promoted particulate to provide a reduced sorbent composition comprising a reduced-valence noble metal.

18. (Original) A process in accordance with claim 17 wherein said reduced-valence noble metal has a valence which is less than the valence of said unreduced noble metal.

19. (Original) A process in accordance with claim 18 wherein said carrier comprises a silica compound and an alumina compound.

20. (Original) A process in accordance with claim 17 wherein said reduced-valence noble metal has a valence of less than 2.

21. (Original) A process in accordance with claim 20 wherein said promoted particulate is dried and calcined before reduction.

22. (Original) A process in accordance with claim 21 wherein said support particulate is dried and calcined before incorporation with said noble metal.

23. (Original) A process in accordance with claim 22 wherein said reduced-valence noble metal comprises platinum.

24. (Original) A process in accordance with claim 17 wherein said support mix is selected from the group consisting of a wet mix, a dough, a paste, and a slurry, and wherein said support particulate is selected from the group consisting of a granulate, an extrudate, a tablet, a sphere, a pellet, and a microsphere.

25. (Original) A process in accordance with claim 24 wherein said support particulate comprises a microsphere.

26. (Original) A process in accordance with claim 17 wherein said support mix is in the form of a slurry and said particulating comprises spray drying said slurry to form a microsphere.

27. (Original) A process in accordance with claim 26 wherein said microsphere has a mean particle size in the range of from about 1 micrometer to about 500 micrometers.

28. (Original) A process in accordance with claim 17 wherein said incorporating is selected from the group consisting of impregnating, soaking, spraying, and combinations thereof.

29. (Original) A process in accordance with claim 17 wherein said incorporating comprises incipient wetness impregnation.

30. (Original) A process in accordance with claim 17 wherein said reduced-valence noble metal has a valence of zero.

31. (Original) A process in accordance with claim 30 wherein said reduced-valence noble metal component comprises platinum.

32. (Original) A composition prepared by the process of claim 17.

33. (Original) A composition prepared by the process of claim 31.

34. (Original) A process for removing sulfur from a hydrocarbon-containing fluid stream, said process comprising the steps of:

(a) contacting said hydrocarbon-containing fluid stream with a sorbent composition comprising a reduced-valence noble metal and a support in a desulfurization zone under conditions such that there is formed a desulfurized fluid stream and a sulfurized sorbent;

(b) separating said desulfurized fluid stream from said sulfurized sorbent;

(c) regenerating at least a portion of the separated sulfurized sorbent in a regeneration zone so as to remove at least a portion of the sulfur therefrom and provide a desulfurized sorbent;

(d) reducing said desulfurized sorbent in an activation zone to provide a reduced sorbent composition which will affect the removal of sulfur from said hydrocarbon-containing fluid stream when contacted with the same; and

(e) returning at least a portion of said reduced sorbent composition to said desulfurization zone.

35. (Original) A process in accordance with claim 34 wherein said support comprises zinc oxide, alumina, and silica.

36. (Original) A process in accordance with claim 35 wherein said sorbent composition comprises said reduced-valence noble metal in an amount in the range of from about 0.01 to about 25 weight percent, said zinc oxide in an amount in the range of from about 10 to about 90 weight percent, said alumina in an amount in the range of from about 1 to about 30 weight percent, and said silica in an amount in the range of from about 5 to about 85 weight percent.

37. (Original) A process in accordance with claim 36 wherein said reduced-valence noble metal component comprises platinum.

38. (Original) A process in accordance with claim 34 wherein said contacting is carried out at a temperature in the range of from about 100°F to about 1000°F and a pressure in the range of from about 15 to about 1500 psia.

39. (Original) A process in accordance with claim 34 wherein said regeneration is carried out at a temperature in the range of from about 100°F to about 1500°F and a pressure in the range of from about 25 to about 500 psia.

40. (Original) A process in accordance with claim 39 wherein there is employed air as a regeneration agent in said regeneration zone.

41. (Original) A process in accordance with claim 34 wherein said desulfurized sorbent is subjected to reduction with hydrogen in said activation zone, said activation zone being maintained at a temperature in the range of from about 100°F to about 1500°F and a pressure in the range of from about 15 to about 1500 psia.

42. (Original) A process in accordance with claim 34 wherein the separated sulfurized sorbent is stripped prior to introduction to said regeneration zone.

43. (Original) A process in accordance with claim 34 wherein said desulfurized sorbent is stripped prior to introduction into said activation zone.

44. (Original) A process in accordance with claim 34 wherein said reduced-valence noble metal has a valence of less than 2.

45. (Original) A process in accordance with claim 34 wherein said reduced-valence noble metal has a valence of zero.

46. (Original) A process in accordance with claim 45 wherein said reduced-valence noble metal compound comprises platinum.

47. (Original) A process in accordance with claim 34 wherein said hydrocarbon-containing fluid stream is cracked-gasoline.

48. (Original) A process in accordance with claim 34 wherein said hydrocarbon-containing fluid stream is diesel.

49. (Original) The product produced by the process of claim 47.

50. (Original) The product produced by the process of claim 48.

51. (New) A sorbent composition suitable for removing sulfur from a hydrocarbon-containing fluid, said sorbent composition comprising:

a reduced-valence noble metal;

zinc oxide; and

a carrier;

wherein said reduced-valence noble metal is present in the range of from about 1.01 to about 25 weight percent.